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Publication number: **0 519 199 A1**

12

EUROPEAN PATENT APPLICATION

21 Application number: 92107910.9

51 Int. Cl.⁵: H05K 5/00

22 Date of filing: 11.05.92

30 Priority: 21.06.91 US 718604

43 Date of publication of application:
23.12.92 Bulletin 92/52

84 Designated Contracting States:
AT DE ES FR GB

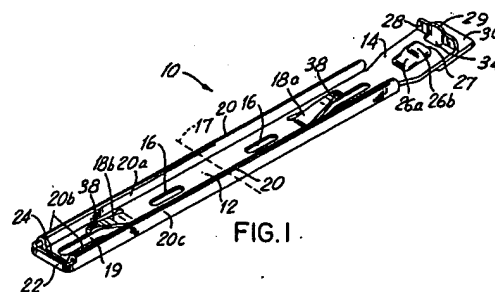
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54 Device for mounting computer components.

57 A device adapted for attachment to the side of a disc drive for mounting the disc drive into a computer comprises a rectangular body having a connector member on one end. The connector member is bent to enable it to resiliently move relative to the body. Grounding tabs disposed on the body are bent up from the body to enable them to resiliently move relative thereto, and their tips are bent down to facilitate smooth installation and removal of the disc drive. A protruding latch member and stopping flap are disposed on the connector end. A secondary stop is disposed on the end of the body opposite said connector member.



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FIELD OF THE INVENTION

The present invention relates to the field of mounting devices, and particularly to devices for mounting computer components such as disc drives and other removable memory media.

BACKGROUND OF THE INVENTION

A number of different methods and devices are used to mount disc drives and other components in computers. One method which was widely used in the past was to simply screw the disc drive directly to the chassis of the computer, which made installation and removal time-consuming and cumbersome. As computers have proliferated and improved, devices have been developed which facilitate installation and removal of disc drives. One such device comprises two flat rectangular side pieces which are attached to opposing sides of the disc drive. Receiving rails are provided in the area of the computer chassis where the disc drive is to be mounted (the "bay"), and are adapted to cooperate with the side pieces in sliding engagement. The disc drive is inserted into the bay, with the side pieces cooperating with the receiving rails. When the disc drive is fully into the bay, it is secured against movement by screwing the side rails to the chassis by conventional screws, or by tightening a screw to press against a side piece or the disc drive itself.

On some occasions, such as repair or upgrading of the computer, the disc drive must be removed from the bay. Upon reinstallation the screws, because of the inconvenience of replacing them, are sometimes not replaced; rather, the front facade of the computer (the "fascia") is relied upon to prevent the disc drive from sliding out of the machine.

In some machines which use the rectangular side pieces, the pieces are mounted such that their front ends are recessed slightly from the front of the bay when the disc drive is installed. Tabs which have been bent at right angles are then employed to secure the disc drive in the machine. Each tab is inserted into the bay at the side of the disc drive such that the end of one face of the tab abuts the front of the side piece, while the other face lies against the chassis at the front of the bay. The latter face is then secured against the chassis by a screw. Some mounting devices have combined the side piece and bent tab into one piece.

Another prior art mounting device comprises two receiving rails disposed at the bottom of the bay which slidably engage two corresponding plastic rails at the bottom of the disc drive. A center plastic rail, upon which is disposed a male latch member, protrudes from the bottom of the

disc drive. When the disc drive is installed in the bay, the latch member enters a hole in the bay to secure the disc drive against forward movement. The disc drive is removed by grasping the protruding center rail, flexing it to free the latch member from the hole, and sliding the disc drive out.

Most prior art mounting devices do not prevent undesired rearward movement of the disc drive. A back wall is usually provided in the bay for this purpose.

Many prior art mounting devices are constructed of plastic to reduce weight and expense. The plastic is often metalized by mixing into or painting onto the plastic a metallic solution in order to reduce electromagnetic field interference. The metalized plastic, however, is not sufficient to ground the disc drive to the chassis. A grounding wire must therefore be included in the data or power supply plugs of the disc drive, or be directly wired from the disc drive to the chassis. Grounding wires are often required even with metal mounting devices, since movement of conventional devices relative to the chassis creates an unreliable connection.

OBJECTS AND SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide for the secure installation of a disc drive into a computer.

It is a further object of the invention to enable easy and convenient installation and removal of a computer disc drive.

It is a further object of the invention to provide for the proper grounding of a disc drive to the computer chassis without need for separate grounding wires.

In accordance with one aspect of the invention, a device for mounting a disc drive into a computer comprises a body portion adapted for attachment to the disc drive and a metal grounding tab attached at its base to the body portion protruding away from the body portion at an angle, the tip of the grounding tab being bent toward the body portion.

In accordance with another aspect of the invention, a device adapted to be attached to one side of a computer component for mounting the computer component into a bay comprises a substantially rectangular body portion and a U-shaped rail disposed on each lengthwise edge of the body portion, the rails being situated such that the open side of the U preferably faces the side of the computer component to which the device is attached. The rails are adapted to cooperate with receiving rails disposed in the bay for proper placement and convenient insertion and removal of the disc drive.

In accordance with another aspect of the invention, a mounting device comprises a body portion having a first end and a second end, the first end comprising a connecting member bent at an angle from the body so as to form a spring. A latching member is disposed on the connecting member, and a stop is disposed on the connecting member for prevention of undesired rearward movement of the mounting device. A grounding tab is disposed on the body portion, and a rail is disposed lengthwise on the body portion.

In accordance with another aspect of the invention, a device for mounting a disc drive into a computer bay comprises a body portion adapted for attachment to the disc drive, a connecting member disposed at an angle from the body portion on a first end of the body portion, and a latch protrusion disposed on the connecting member adapted for insertion into a recess provided in the computer bay for engagement of the member when the disc drive is fully inserted into the bay. A stop extends from the connecting member at substantially right angles to the latter, such that when the disc drive is fully inserted into the computer bay, the stop abuts the front of the bay preventing the disc drive from being inserted any farther into the bay. A release protrusion is attached to the connecting member and extends out of the bay when the disc drive is fully inserted into the bay, the release protrusion extending sufficiently for an operator to deflect the release protrusion, disengage the latch protrusion from the recess, and pull the disc drive out of the computer.

Specifically, and in a preferred embodiment, a device for mounting a computer disc drive into a computer comprises a substantially rectangular steel piece adapted to be attached to the side of the disc drive, the steel piece having a first end, a body, and a second end, the first end being bent relative to the body. Two rails are disposed on the body, each being formed on a lengthwise edge of the body by bending the lengthwise edge into a U-shaped configuration, thus forming an inner wall, a top, and an outer wall, the inner wall and the top terminating near the second end of the steel piece, the outer wall being bent around the second end to form an end wall, and the second end of the steel piece being bent up slightly to abut the end wall to minimize sharp edges. A grounding tab is disposed on the steel piece, being angularly disposed from the latter to act as a spring whose tip is bent downwardly for smooth insertion of the disc drive into the computer and for reliable grounding. A latch protrusion is disposed on the first end for selective latching engagement with a corresponding latch recess in the computer. A stop is disposed on the first end for selective abutting engagement with the front of the bay of the computer

into which the disc drive is inserted.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects, aspects, and embodiments of the present invention will be described with reference to the following drawing figures, of which:

- 5 FIG. 1 is a perspective view of an embodiment of a mounting device according to the present invention;
- 10 FIG. 1A is a partial perspective view of another embodiment of a mounting device according to the invention;
- 15 FIG. 2 is a top plan view of the mounting device of FIG. 1;
- 20 FIG. 3 is a side elevational view of the mounting device of FIG. 1;
- 25 FIG. 4 is a rear view in cross-section along line 4-4 of FIG. 2;
- 30 FIG. 4A is a rear view in cross-section of another embodiment of a mounting device according to the invention having an alternative side rail construction;
- 35 FIG. 5 is a rear view in cross-section of a further embodiment of a mounting device according to the invention having an alternative side rail construction;
- 40 FIG. 5A is a rear view in cross-section of yet another embodiment of a mounting device according to the invention having an alternative side rail construction;
- 45 FIG. 6 is a rear view of a still further embodiment of a mounting device according to the invention having an alternative side rail construction;
- 50 FIG. 7 is a perspective view of a disc drive, having attached to its sides two mounting devices according to FIG. 1, that is partially inserted into a bay;
- 55 FIG. 8 is a perspective view of a disc drive, having attached to its sides two mounting devices according to FIG. 1, that is fully inserted into a bay;
- 60 FIG. 9 is a top view in cross-section along line 9-9 in FIG. 7;
- 65 FIG. 10 is a top view in cross-section along line 10-10 in FIG. 8; and
- 70 FIG. 11 is a top view in cross-section of a disc drive, having attached on its sides mounting devices according to FIG. 1, that is being removed from a bay.

DETAILED DESCRIPTION OF THE INVENTION

Referring first to Figs. 1 to 4, a mounting device 10 according to the invention is shown. The mounting device 10 is constructed entirely of type

301 or 302 stainless steel having a 1/4 hardness in the preferred embodiment, which steel has been found to have the proper balance of resiliency, rigidity, and strength, and which is relatively easy to form into the desired shape. It is available from, for example, Bethlehem Steel Corporation, Bethlehem, Pennsylvania, or USX Corporation, Pittsburgh, Pennsylvania. Other suitable materials can also be used, if desired, including SAE 1050 cold rolled carbon steel, available commercially from the same companies. If the latter material is used, it should preferably be heat treated after forming to a minimum spring temper of 140,000 PSI by ordinary methods known to those in the steel fabrication art.

The device 10 comprises a substantially rectangular body 12 and a connecting member 14 disposed on one end of the body 12. The connecting member 14 is bent from the body 12 to enable resilient movement relative to the remainder of the body 12. The body 12 and most of the connecting member 14 are constructed of a single piece of steel on the order of 0.025 inches thick in the preferred embodiment.

As shown most clearly in Fig. 4, each lengthwise edge of the body 12 is bent to form a U-shaped rail 20 disposed at right angles to the plane of the body 12. The rails 20 cooperate with conventional receiving rails in a disc drive bay for proper installation of the disc drive, as discussed below. Each U-shaped rail 20 comprises an inner wall 20a adjacent to the body 12, a top 20b, and an outer wall 20c. The U-shape of the rails 20 is preferable to other shapes because it is strong and easy to manufacture. It will be appreciated that the rails 20 enable the device 10 to approximate the shape of a thick side piece while allowing the device 10 to be constructed of relatively thin material.

Other possible configurations of the rails 20 are shown in Figs. 4A, 5, 5A, and 6. In Fig. 4A, the side rails 120 are similar to the rails 20 except that the inner walls 120a are not perpendicular to the body 12. In Fig. 5, side rails 220 are formed by merely bending up the lengthwise edges of the body 12 until they are perpendicular to the rest of the body. In Fig. 5A, the side rails 320 are similar to the rails 20 except that the inner and outer walls 320a and 320c are not spaced from each other. In Fig. 6, side rails 420 are formed by bending up the lengthwise edges of the body 12 as in Fig. 5, and further bending the upper portion of the edges until the upper portion is perpendicular to the lower portion and parallel to the body 12. The rails shown in Figs. 4A, 5, 5A, and 6 have been found to be less preferable for reasons of strength, exposure of sharp edges, and/or difficulty of manufacture.

As shown in Figs. 1 to 3, the inner walls 20a and tops 20b of the rails 20 terminate near the end

of the body 12 opposite the connecting member 14. The outer walls 20c, however, extend farther. Those extensions of the outer walls 20c are bent around the end of the body 12 so that their ends meet, forming an end wall 22. The end of the body 12 itself is bent slightly upward to form a lip 24 abutting the wall 22, minimizing the exposure of sharp edges. The lip 24 serves as a stiffener to support the wall 22, which serves as a secondary stop as described below.

Two slots 16 are disposed near the center of the body 12 on opposite sides of its midpoint, shown by the dotted line 17 in Figs. 1 and 2. The slots 16 accommodate fastening means, such as screws, for securing the device 10 to a disc drive in the preferred embodiment. Two grounding tabs 18a and 18b, which are cut from the body 12 and bent away from it, are disposed closer to the ends of the body 12 than the slots 16. The tab 18a is disposed near the connecting member 14, while the tab 18b is disposed near the opposite end of the body 12. A slot 19 is provided in the body 12 below each grounding tab 18a,b. The slots 19 may also be used to accommodate fastening means, if desired.

The ends or tips of the tabs 18a,b are bent toward the body 12, forming an apex 38 on each tab 18a,b. The apices 38 prevent catching or scratching of the chassis during installation and removal of the disc drive from the computer, which could occur if the ends of the tabs were exposed at their highest point. Such a configuration also allows the relatively smooth and flat surface of the apices 38 to contact the sides of the bay for more reliable grounding. In a preferred embodiment, each tab 18a,b is relatively wide at the point where it bends away from the body 12, becoming progressively narrower toward its end. The tabs 18a,b act as springs, having resilient movement, which enables them to continually press against the sides of the bay for proper grounding, while allowing for irregularities or poor fit. The shape of the tabs 18a,b may be varied depending on the specific spring force desired. Other factors being equal, the wider the base of the tab, the greater the spring force will be. It will be seen, therefore, that the tabs 18a,b may be of the same width at top and bottom if force requirements are low, if, for example, the disc drive to which the device 10 is attached is small and lightweight.

As shown in Fig. 3, the tabs 18a,b are bent at an angle such that their apices 38 are positioned above the tops 20b of the rails 20. This configuration allows the apices 38 to contact the metal side of the bay or receiving rail for grounding. The tabs 18a,b also provide a way of centering a disc drive in the bay. Since the tabs are resilient and extend above the tops of the rails, some side-to-side

movement of the disc drive in the bay can be undertaken to center the disc drive in the bay and align the former with a corresponding opening in the overlying fascia of the computer, while still grounding the disc drive to the wall of the bay.

As mentioned above, the connecting member 14 is bent slightly relative to the body 12. A substantially square protrusion 26a is disposed on the surface of the connecting member 14. A second substantially square latching protrusion 26b or male latch member is disposed adjacent to the protrusion 26a, protruding slightly more than the latter. One side of the latching protrusion 26b is separated from the rest of the connecting member 14, forming a latch opening 27.

As mentioned above, the body 12 and most of the connecting member 14 are constructed in the preferred embodiment of a single piece of steel. The end of that piece is turned upward at the connecting member 14 to form a stop or flap 28. A stiffener rib 29 is formed in the center of the stop 28, extending slightly beyond the bend of the stop 28 into the connecting member 14. An extension plate 30 is welded or otherwise secured to the back of the connecting member 14. The extension plate 30 is preferably formed of the same material as the rest of the mounting device 10, but is somewhat thicker, on the order of 0.032 inches thick in the preferred embodiment. A hole 32 in the extension plate 30 (Fig. 2) provides room for the protruding stiffener rib 29.

In an alternative embodiment shown in Fig. 1A, the extension plate 30 is integral with the connecting member 14. The connecting member 14 has two side extensions 14a and 14b which are folded under the connecting member 14 on either side to form the extension plate 30. An interlocking tab 30a is disposed on the extension 14b which fits into a recess in the extension 14a.

Fig. 1A also shows an alternative embodiment of a latching protrusion 26' disposed on the connecting member 14. The latching protrusion 26' rises from the surface of the connecting member 14 to the latch opening 27 at a slope, creating a triangular vertical cross-section.

As shown in Fig. 3, most of the connecting member 14, like the apices 38 of the tabs 18a,b, is disposed above the plane formed by the tops of the rails 20b in the preferred embodiment. This is particularly true of the portion from the protrusion 26b to the end of the extension plate 30.

As shown in Figs. 7 to 10, two mounting devices 10 cooperate with a disc drive 44 to securely mount and ground the latter in a bay 40. The mounting devices 10 are attached to the sides of the disc drive 44 by means of screws through the slots 16 and 19, or by any other suitable means such as bolts, rivets, or the like. In order to prop-

erly ground the disc drive 44, the bay 40 is constructed of steel or other conducting material in the preferred embodiment, or alternatively, only the portion of the side walls of the bay 40 which contact the mounting device 10 are constructed of conducting material. The bay 40 contains conventional receiving rails 41a and 41b, widely known in the art, which are disposed on the sides of the bay 40, the top receiving rails 41a being spaced from the bottom receiving rails 41b at a distance of slightly greater than the width of the device 10. Latching holes or recesses 42 are disposed on each side wall of the bay 40 and act as female latch members for latching engagement with the protrusions 26b. As shown in Figs. 8 and 10, optional rear protrusions 43 are disposed near the rear of the side walls of the bay 40. As will be readily understood by those in the art, the bay 40 is preferably designed such that its width is just enough to accommodate the width of the disc drive 44 having attached thereto the mounting devices 10.

In operation, the disc drive 44 is inserted into the bay 40 such that the rails 20 of the devices 10 are placed in sliding engagement with the receiving rails 41a,b. This cooperation of the rails 20 and receiving rails 41a,b facilitates the smooth entry of the disc drive 44 into the bay 40 and prevents vertical movement of the disc drive in the bay. As the disc drive 44 is inserted far enough so that the tabs 18b enter the bay 40, the tabs 18b are deflected by the walls of the bay 40, since in the preferred embodiment the bay 40 is not wide enough to accommodate the tabs 18b without deflecting them. The tabs 18a also enter and are deflected by the walls of the bay 40. The tabs 18a,b will therefore exert continual pressure against the walls of the bay 40, properly grounding the disc drive 44.

It will be appreciated that the downward curve of the tip of the grounding tabs 18b will allow the latter to enter the bay 40 in sliding engagement with the side wall without catching on the front of the bay.

When the disc drive 44 nears full insertion into the bay 40, the side walls of the bay 40 begin to deflect the connecting members 14 back, since the connecting members 14, like the tabs 18a,b, are designed to protrude beyond the tops of the rails 20b in the preferred embodiment. As the disc drive 44 is inserted farther into the bay 40, the latching protrusions 26b reach the latching holes 42, whereupon the protrusions 26b come into latching engagement with the holes 42, with an audible click in a preferred embodiment to notify the operator that the disc drive is fully inserted. This latching engagement prevents the disc drive 44 from moving out of the bay 40. The disc drive is now fully

inserted into the bay.

When the disc drive 44 is fully inserted, the stops 28 press against the front of the bay 40, preventing the disc drive 44 from moving farther into the bay 40. Thus, the bay 40 may be longer than the disc drive 44 if, for example, it is desired to accommodate drives of varying lengths. As shown in Figs. 8 and 10, the protrusions 43 can also be used to delimit the movement of the disc drive 44 by abutting against the end walls 22 (supported by the lips 24) of the device 10. The end walls 22 thus serve as secondary stops in addition to the stops 28. The secondary stop is particularly useful during extreme shipping conditions, especially if the disc drive 44 or other component is particularly heavy.

Vertical movement of the disc drive 44 is prevented by the cooperation of the rails 20 and receiving rails 41, and front-rear horizontal movement is prevented by the latching engagement of the protrusions 26b with the holes 42 and the stops 28 abutting the front of the bay 40, as well as by the protrusions 43. As mentioned above, it may be desired to provide for some side-to-side play between the disc drive 44 and bay 40 so that the former can be centered in the latter. The resilient protruding tabs 18a,b provide for continuous grounding even with some side-to-side displacement.

Fig. 11 illustrates the preferred method of removing the disc drive 44 from the bay 40. Holding the drive with both hands, the operator uses his fingers to deflect the extension plates 30 towards the sides of the drive 44, thereby moving the latching protrusions 26b out of engaged relationship with the latching holes 42. The operator then pulls the disc drive 44 out of the bay 40. It will be appreciated that the sides of the drive serve as a natural stop for the extension plates 30, thereby preventing overstress of the deflected connecting member 14. Since, as with the tabs 18b, the tips of the tabs 18a are curved toward the device 10, the device 10 can be removed from the bay 40 without the tabs 18a catching on the latching holes 42.

This invention is particularly suitable for use in combination with the products described in our copending application entitled "COMPUTER HOUSING," Serial No. 07/fig.184, filed on even date with this application and commonly assigned to the assignee hereof, the contents of which are incorporated herein by reference as though fully set forth herein.

It will be appreciated by those skilled in the art that the present invention may be used for either hard or floppy disc drives and other removable memory media such as tape cartridges. The invention may also be used with other computer components that are inserted into the computer in a

similar fashion, as well as with any component of a machine that is similarly mounted into a receptacle. It will be understood that the preceding disclosure is a detailed description of a preferred embodiment of the invention, and should not be construed to limit the scope of the invention, which is defined by the following claims.

Claims

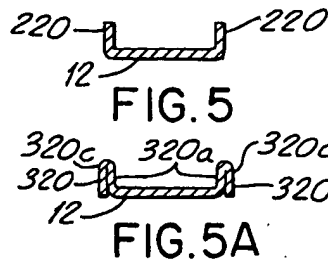
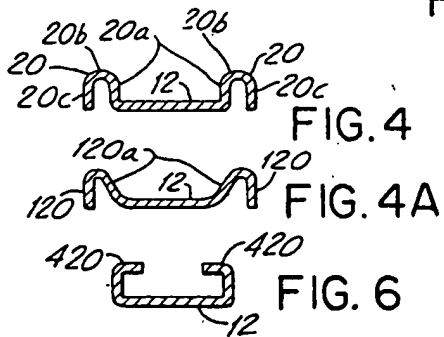
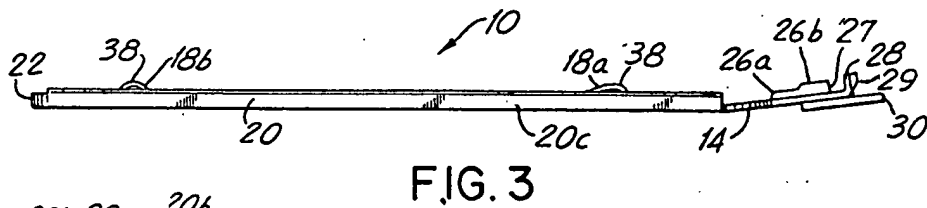
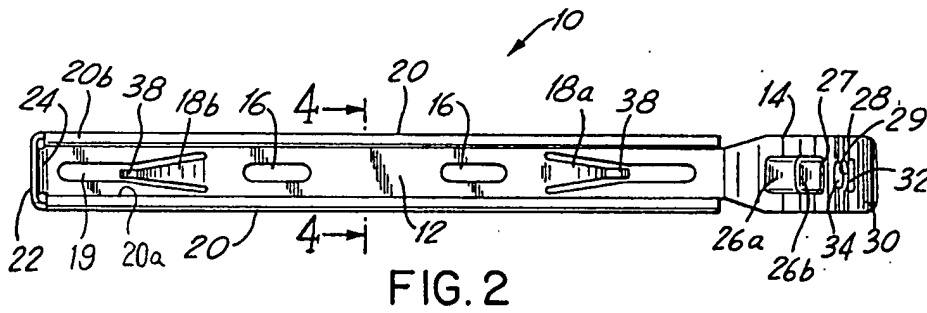
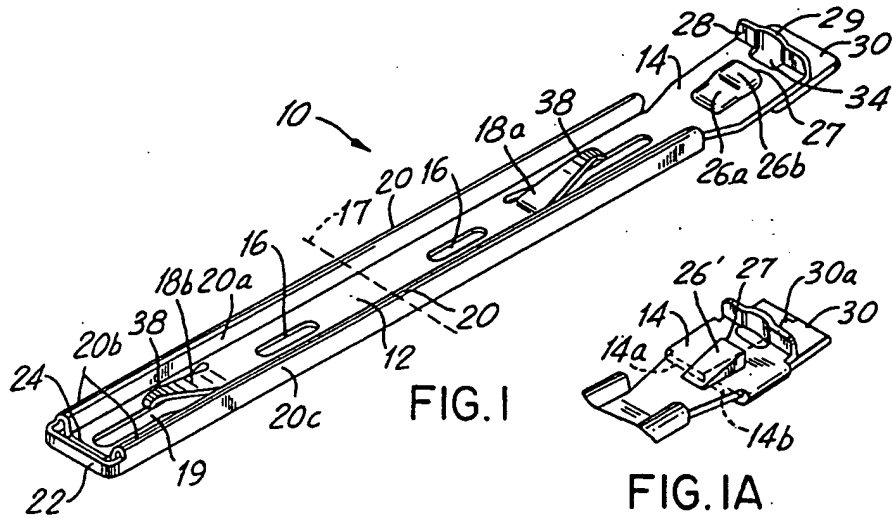
1. A device for mounting a computer component (44) into a computer, comprising:
 - a body portion (12) adapted for attachment to said computer component (44); and
 - a metal grounding tab (18a, 18b) attached at its base to said body portion (12) and protruding away from said body portion at an angle, the tip of said grounding tab being bent toward said body portion, said grounding tab (18a, 18b) designed for continuous contact with the wall of a bay (40) into which said component is inserted.
2. The device of claim 1, wherein said grounding tab (18a, 18b) is relatively wide at its base, becoming progressively narrower toward its tip.
3. The device of claim 1 or 2, wherein said body portion (12) has a first end and a second end, said first end being bent slightly to be resiliently movable relative to the rest of said body portion (12), and further comprising a male latch member (26a, 26b) protruding from said first end adapted for engagement with a female latch member (42) disposed on said computer when said computer component (44) is fully inserted into said computer.
4. The device of claim 1, 2 or 3, wherein said body portion (12) has a first end and a second end, and further comprising a stop (28) protruding from said first end for preventing further movement of said component into said computer when said component is fully inserted into said computer.
5. The device of any of claims 1 to 4, wherein said body portion (12) is substantially rectangular, and further comprising at least one rail (20) disposed lengthwise on said body portion (12), wherein the top (20b) of said rail (20) protrudes from said body portion (12) to a lesser extent than the top of said grounding tab (18a, 18b) protrudes from said body portion (12).
6. The device of claim 5, wherein at least one rail

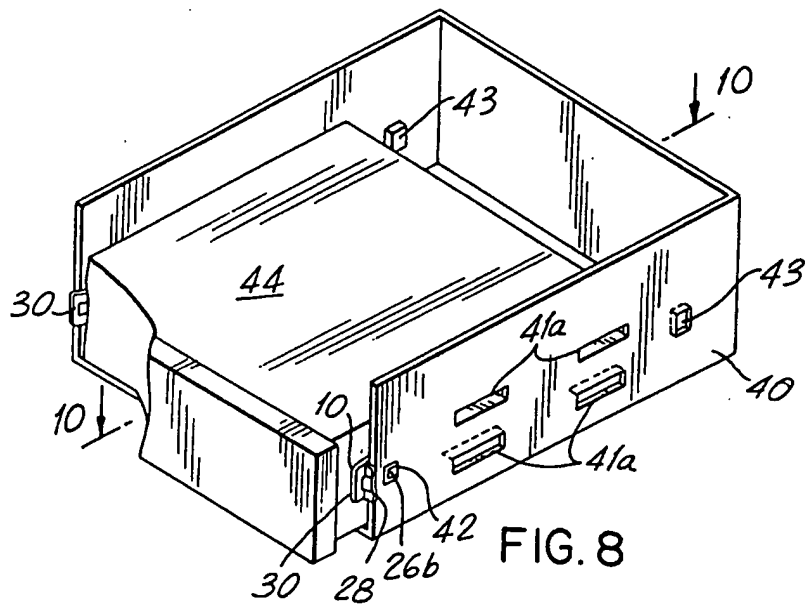
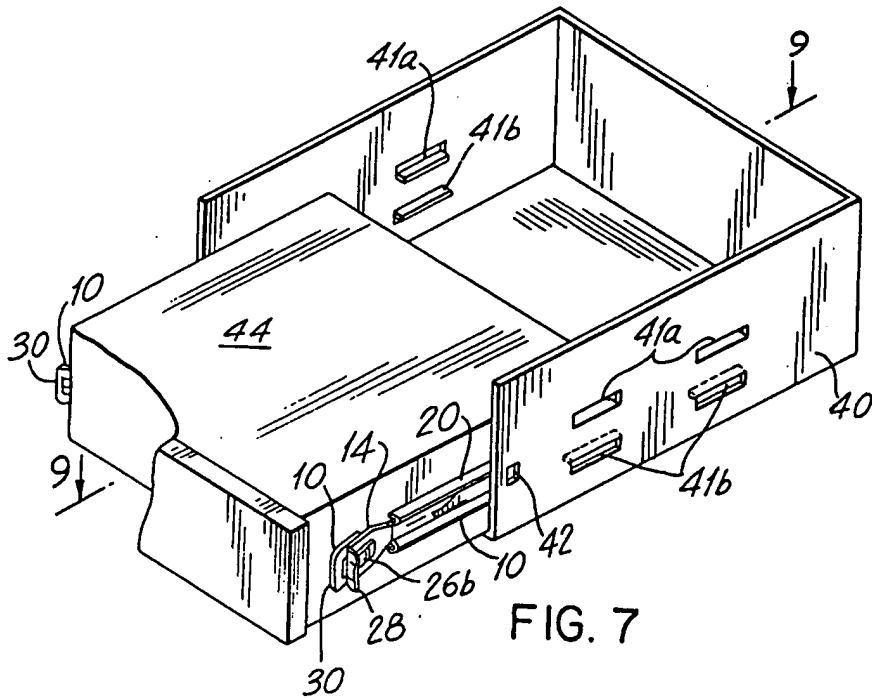
- (20) is created by forming a lengthwise edge of said body portion (12) into a U such that the open end of the U faces said computer component (44) when said body portion (12) is attached thereto.
7. A device adapted to be attached to one side of a computer component (44), for mounting said computer component (44) into a bay (40), comprising:
 - a substantially rectangular body portion (12) having a first end and a second end; and
 - an U-shaped rail (20) disposed on each lengthwise edge of said body portion (12), situated such that the open end of the U faces the side of said computer component (44) to which said device is attached, and adapted to cooperate with a plurality of receiving rails (41a, 41b) disposed in said bay (40).
 8. The device of claim 1 or 7, wherein said computer component (44) comprises a disc drive.
 9. The device of claim 7, further comprising latching means (26a, 26b) disposed on said first end for engagement with receiving means (42) disposed on said bay (40) when said computer component (44) is fully inserted into said bay (40).
 10. The device of any of claims 7 to 9, further comprising stopping means (28) disposed on said first end for preventing further movement into said bay (40) when said computer component (44) is fully inserted into said bay (40).
 11. The device of any of claims 7 to 10, wherein said first end is angularly disposed from the remainder of said body portion (12).
 12. The device of any of claims 7 to 11, further comprising at least one grounding tab (18a, 18b) bent away from said body portion (12) to provide resilient movement of said grounding tab (18a, 18b) relative to said body portion (12).
 13. The device of claim 12, wherein the tip of said grounding tab (18a, 18b) is bent toward said body portion (12), forming an apex (38) on said grounding tab (18a, 18b), and wherein the distance from said apex (38) to said body portion (12) is greater than the distance from the top (20b) of said rails (20) to said body portion (12).
 14. A mounting device, comprising:
 - a body portion (12) having a first end and
 - a second end, said first end comprising a connecting member (14) angularly disposed from said body (12) so as to form a spring;
 - a latching member (18a, 18b) disposed on said connecting member (14);
 - a stop (28) disposed on said connecting member (14) for prevention of undesired rearward movement of said mounting device (10);
 - at least one grounding tab (18a, 18b) disposed on said body portion (12); and
 - at least one rail (20) disposed lengthwise on said body portion (12).
 15. The device of claim 14, wherein said at least one rail (20) is a U-shaped rail formed on a lengthwise side of said body portion (12), the U being perpendicular to the plane of said body portion (12).
 16. The device of claim 14 or 15, wherein said device (10) is adapted to mount a disc drive into a computer, and wherein said device (10) is adapted to be secured to a side of said disc drive.
 17. The device of any of claims 14 to 16, wherein said grounding tab (18a, 18b) protrudes away from said body portion (12) at an angle, and wherein the tip of said grounding tab (18a, 18b) is bent slightly toward said body portion (12).
 18. A device on a computer component (44) for mounting the component into a computer bay (40), comprising:
 - a body portion (12) adapted for attachment to said component;
 - a connecting member (14) disposed at an angle from said body portion (12), on a first end of said body portion (12);
 - a latch protrusion (26a, 26b) disposed on said connecting member (14) and adapted for insertion into a recess (42) provided in said computer bay (40) when said component (44) is fully inserted into said bay (40);
 - a stop (28) extending from said connecting member (14) at a substantially right angle to said connecting member (14), such that when said component is fully inserted into said computer bay (40), said stop (28) abuts the front of said bay (40), preventing further movement of said component (44) into said bay (40); and
 - a release protrusion (30) attached to said connecting member (14) and extending out of said bay (40) when said component (44) is fully inserted into said bay (40), said release protrusion (30) extending sufficiently for an operator to deflect said release protrusion (30),

disengage said latch protrusion (26a, 26b) from said recess (42), and pull said component (44) out of said computer.

19. The device of claim 18, further comprising two rails (20), each of which is disposed on a lengthwise edge of said body portion (12). 5
20. The device of claim 19, wherein each of said rails (20) is generally in the shape of a U. 10
21. A device for mounting a compute disc drive into a computer, comprising:
 - a substantially rectangular steel piece (10) adapted to be attached to the side of said disc drive (44), said steel piece (12) having a first end, a body (12), and a second end, said first end being bent relative to said body (12); 15
 - two rails (20), each being disposed on a lengthwise edge of said body (12), said rails (20) being formed by bending said lengthwise edges into a U-shaped configuration, each rail (20) thus comprising an inner wall (20a), a top (20b), and an outer wall (20c), said inner wall (20a) and said top (20b) terminating near said second end of said steel piece (10), said outer wall (20c) being bent around said second end to form an end wall (22), and said second end (24) of said steel piece (10) being bent up slightly to abut said end wall to minimize sharp edges; 20
 - at least one grounding tab (18a, 18b) disposed on said steel piece (10), being angularly disposed from the latter to provide the properties of a spring, and whose tip is bent downwardly for smooth insertion of said disc drive (44) into said computer and for reliable grounding; 25
 - a latch protrusion (26a, 26b) disposed on said first end for selective latching engagement with a corresponding latch recess (42) in said computer; 30
 - a stop (28) disposed on said first end for selective abutting engagement with the front of the bay (40) of said computer into which said disc drive (44) is inserted. 35
22. The device of claim 21, wherein said latch protrusion (26a, 26b) is substantially rectangular, three sides of which are closed and one side of which is open, for secure latching. 40
23. The device of claim 21 or 22, wherein said stop (28) comprises a flap protruding at substantially right angles from said first end. 45
24. The device of claim 21, 22 or 23, further comprising a tab (30) disposed on said first end by 55

which an operator can deflect said first end and remove said latch protrusion (26a, 26b) from said latch recess (42), thereby unlatching said disc drive (44) and enabling removal of said disc drive (44) from said computer.





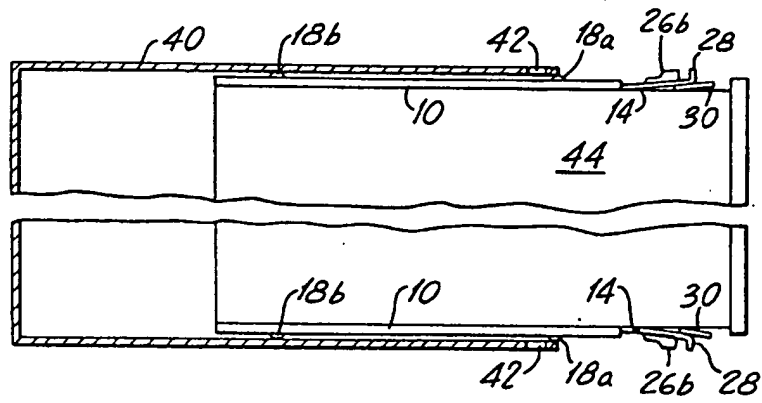


FIG. 9

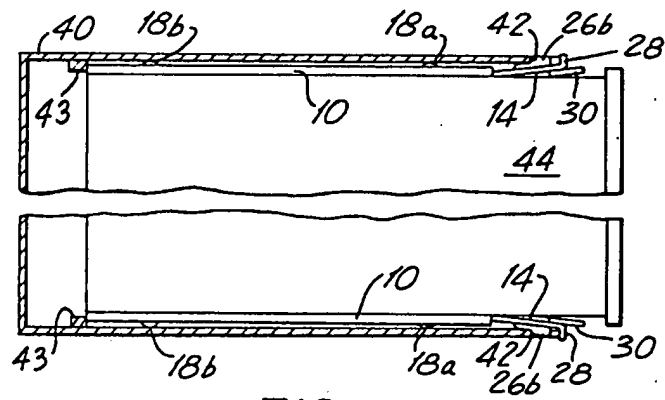


FIG. 10

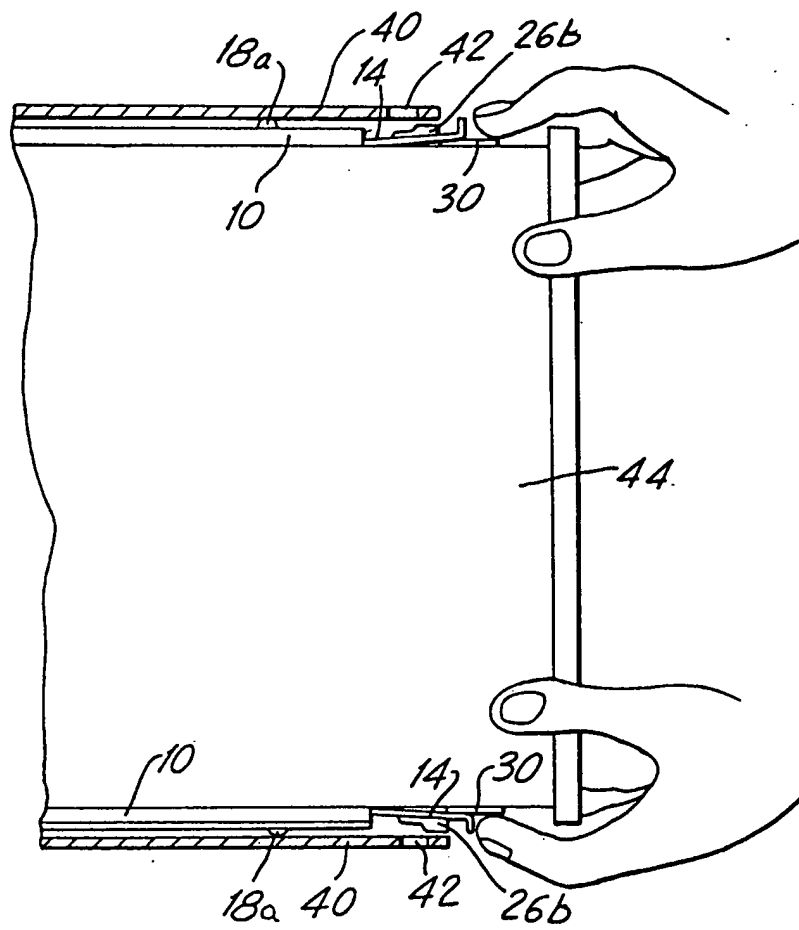


FIG. II



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 92107910.9
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. CL.5)
A	<u>DE - A - 3 304 178</u> (INT. STANDARD ELECTRIC) * Abstract; fig. 1 *	1, 14, 18, 21	H 05 K 5/00
A	<u>DE - A1 - 3 630 397</u> (BBC) * Abstract; fig. 1 *	1, 14, 18, 21	
A	<u>DE - A1 - 3 200 646</u> (CGEE) * Abstract; fig. 1A-1C *	1, 14, 18, 21	
A	<u>DE - A - 2 952 370</u> (METRAWATT) * Claims 1-4; fig. 1, 2 *	1, 14, 18, 21	
			TECHNICAL FIELDS SEARCHED (Int. CL.5)
			H 05 K 5/00 H 05 K 7/00
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 08-09-1992	Examiner VAKIL
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			